# Optimization of the management practices for chickpeas in Mediterranean cropping systems

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XLV Convegno Nazionale
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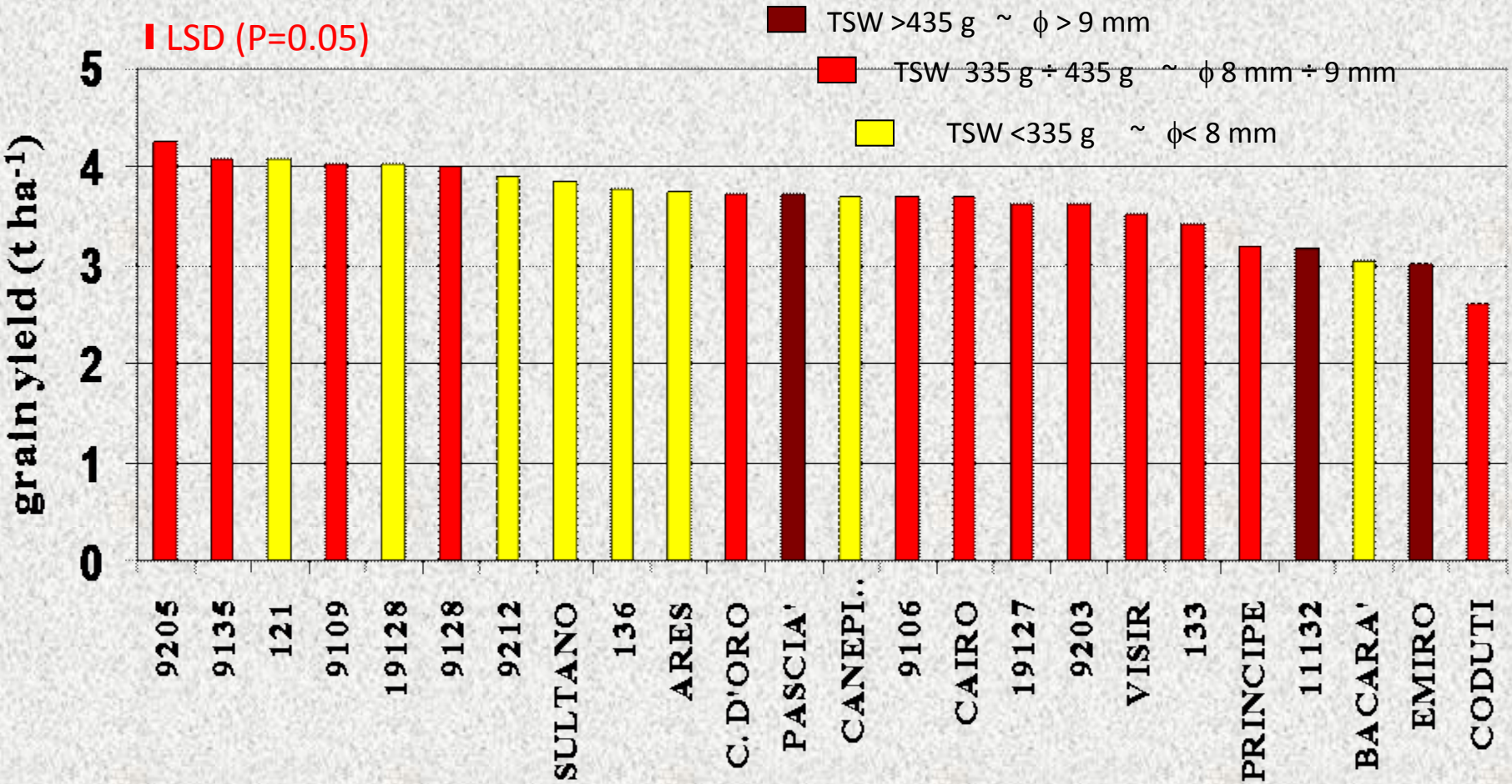
## Location and years:

- Rieti (RI) 2006;
- Viterbo (VT) 2007-2008-2009-2011-2012;
- Attigliano (TR) 2008-2009;
- Tarquinia (VT) 2007-2008-2009;
- S. Stefano di Quisquina (AG) 2000-2012.

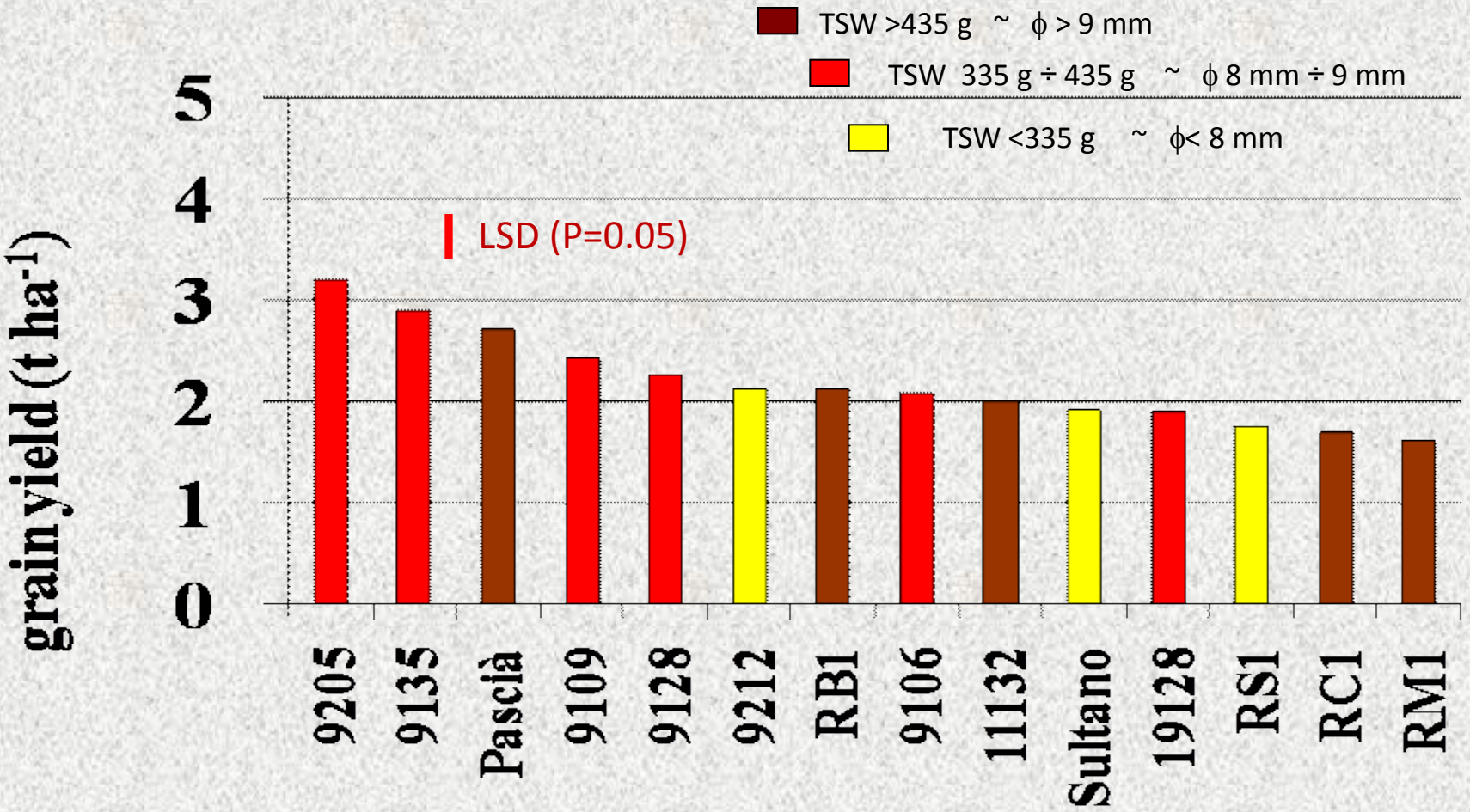
# Pivotal aspects of chickpea management practices

- Cultivar selection;
- Time of sowing;
- Seeding rate;
- Weed control;
- Soil tillage;
- Crop rotation.

# Cultivar selection (Rieti 2006)



# **Cultivar selection** (Tarquinia 2007)



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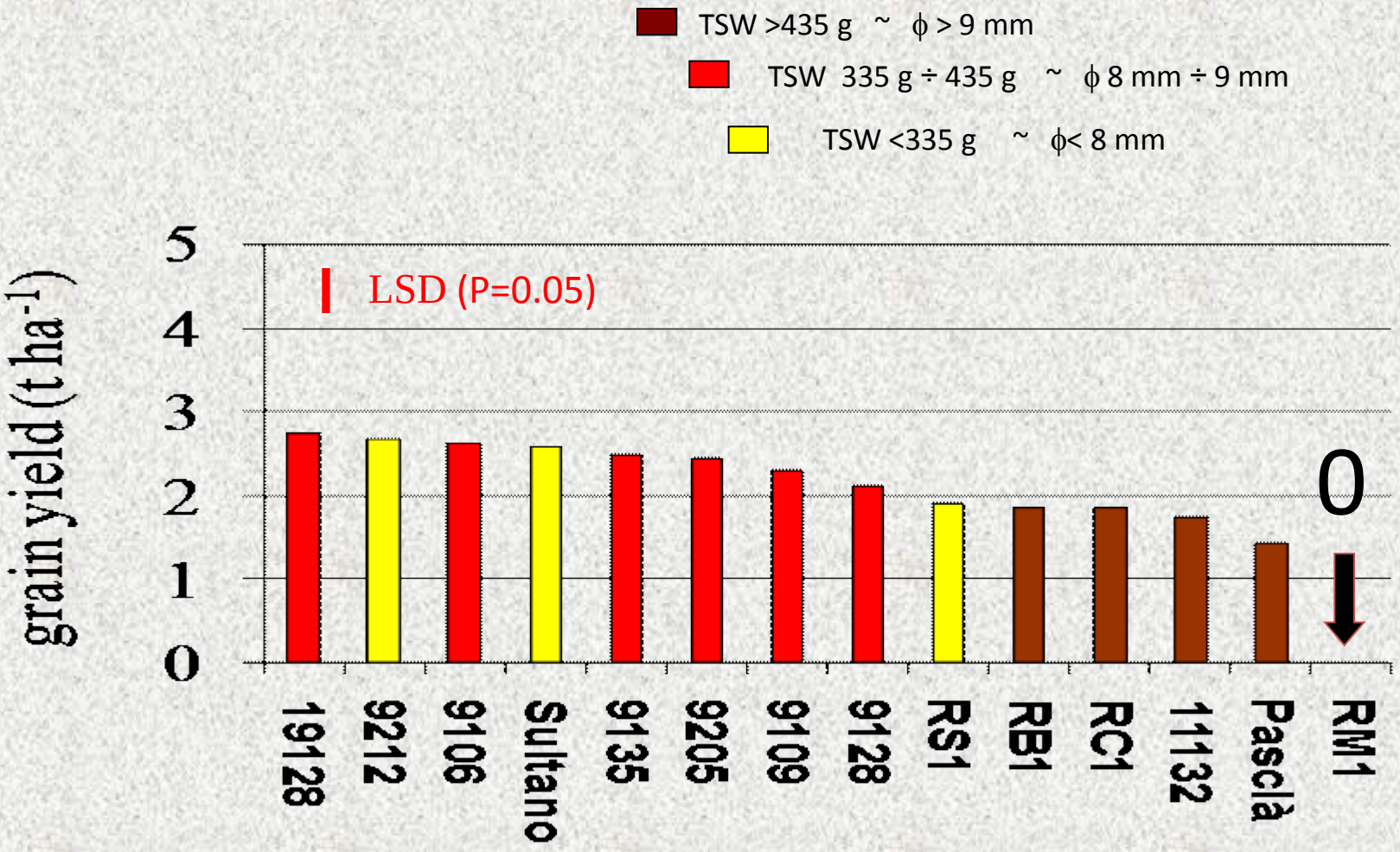
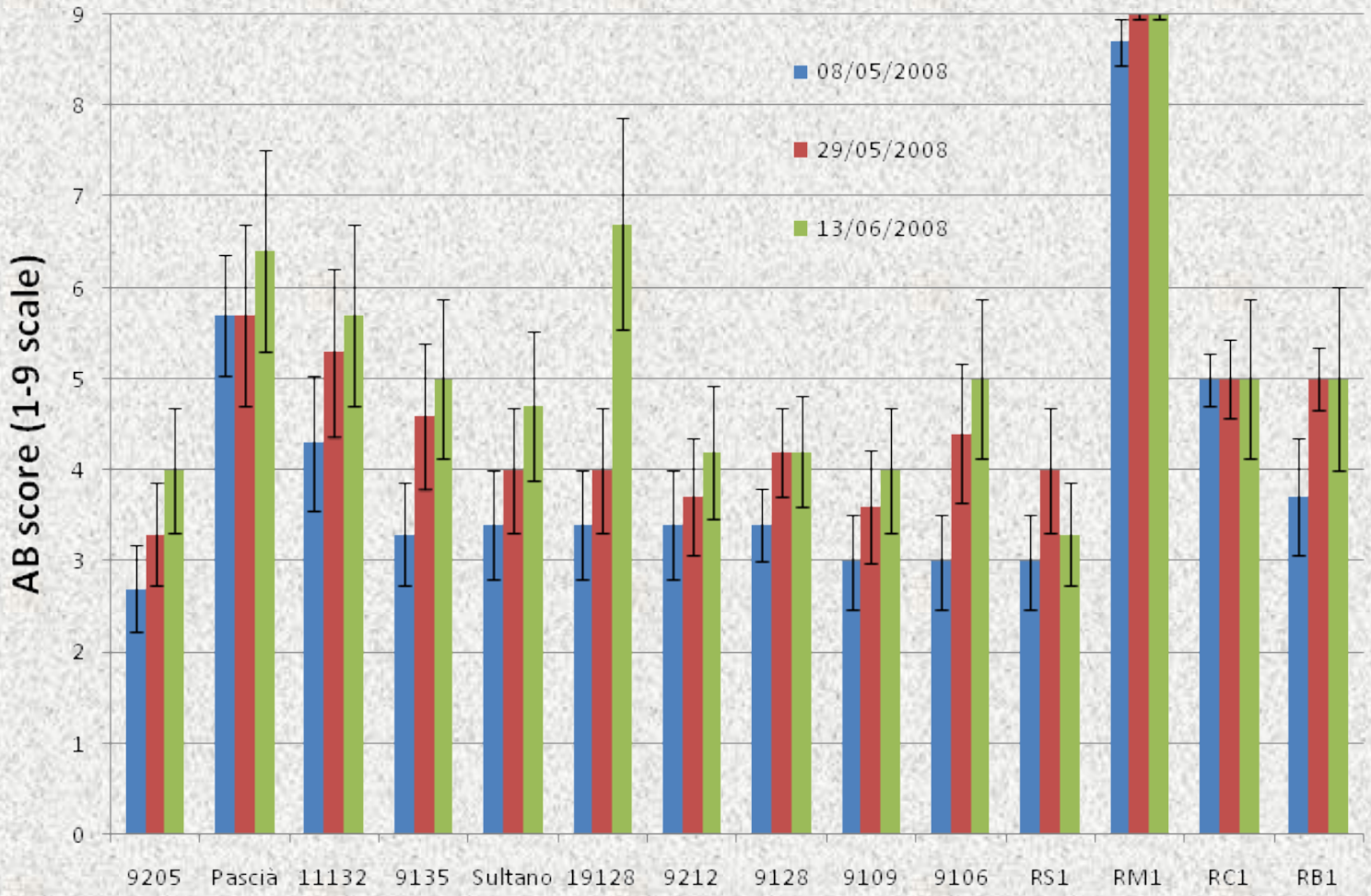


# Cultivar selection (Tarquinia 2008)

## AB tolerance



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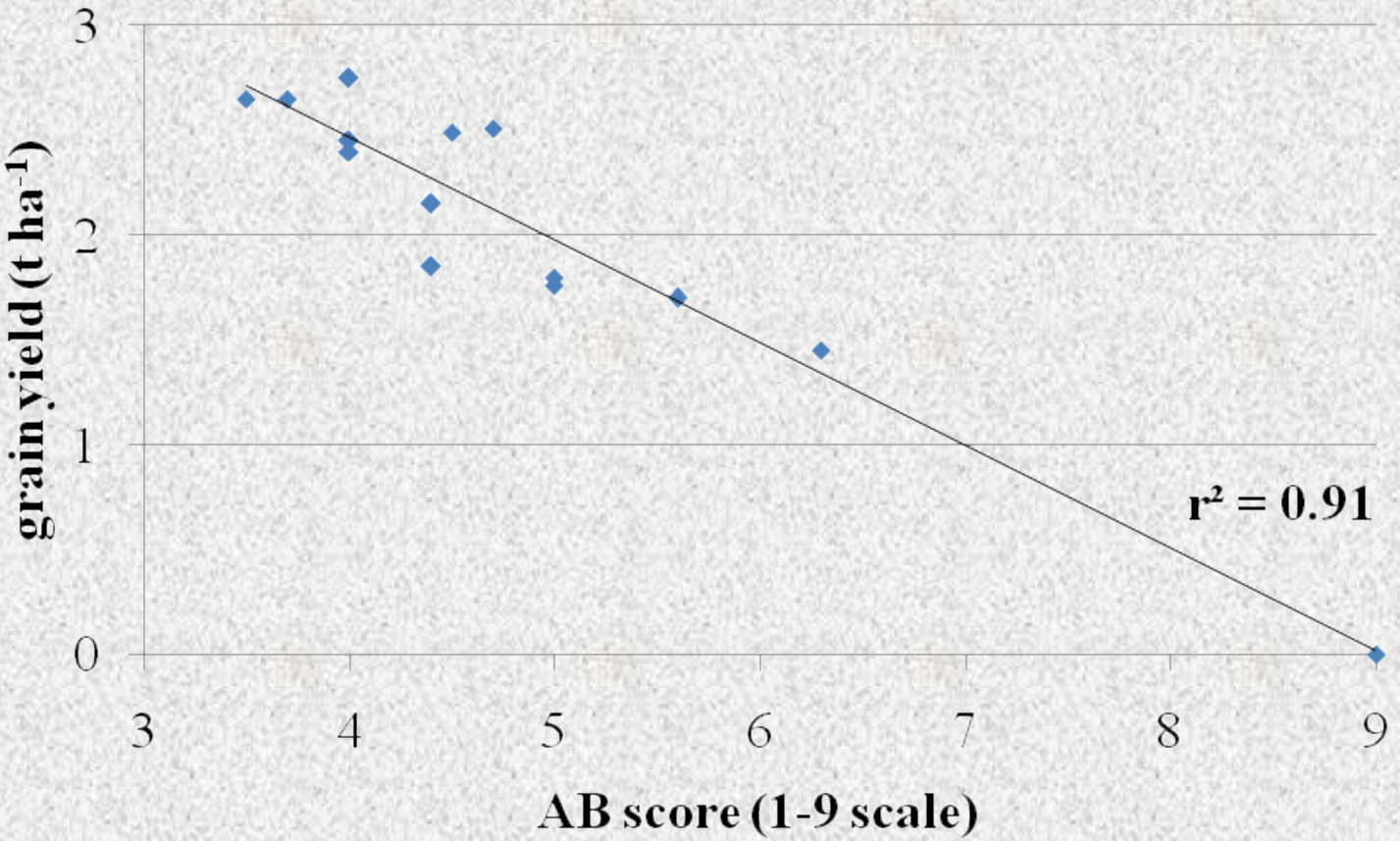
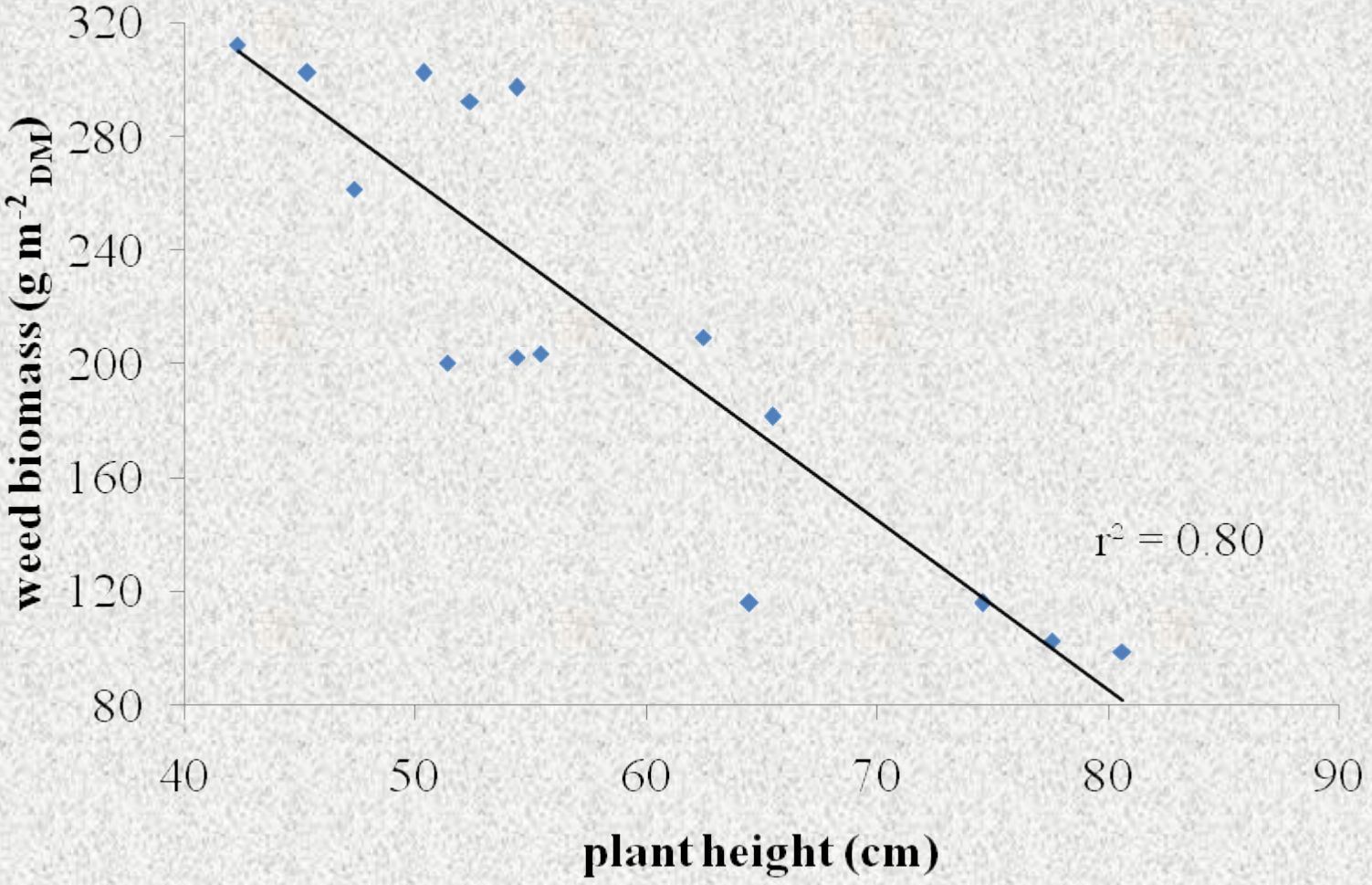


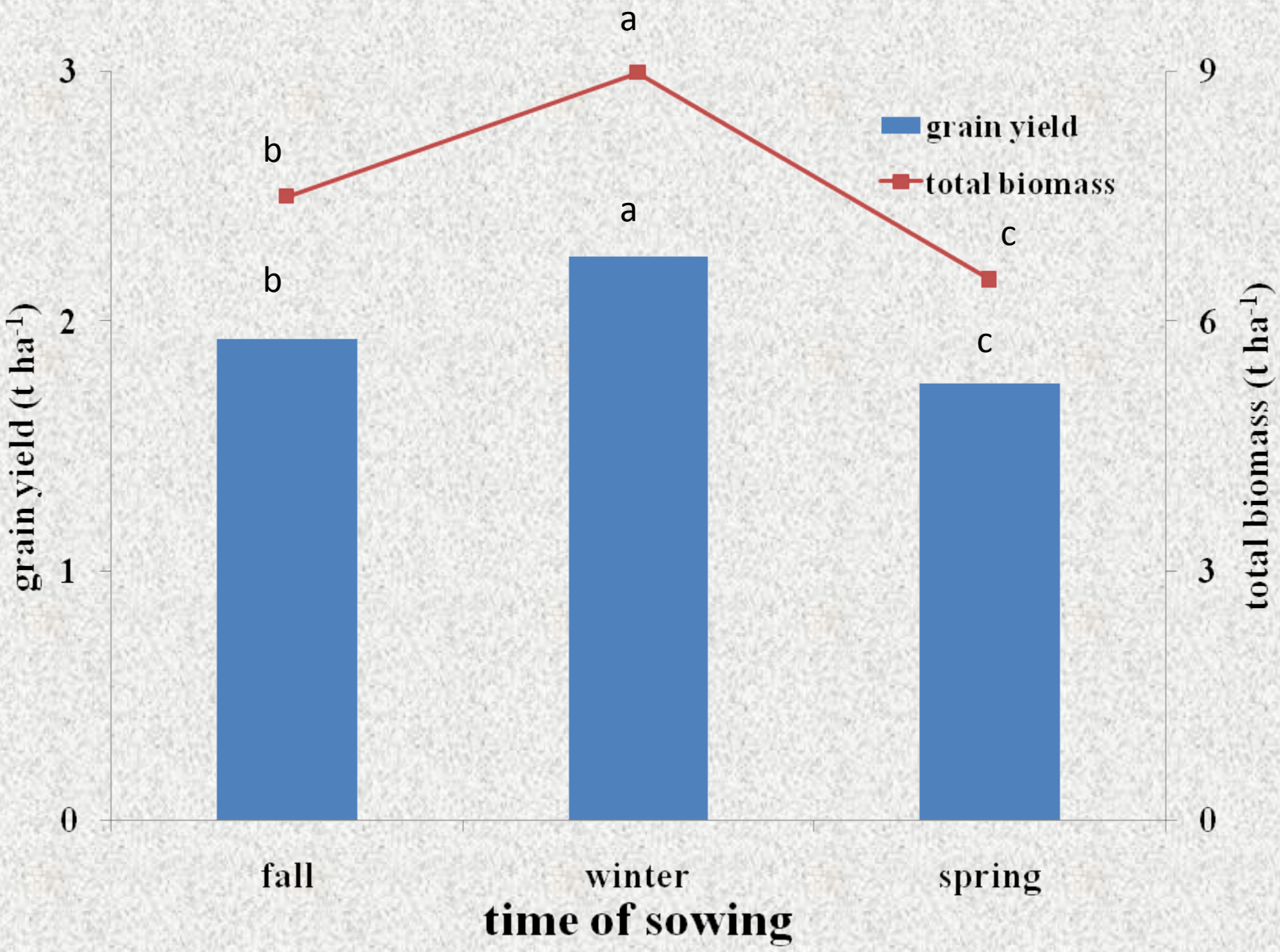

RM1
Tarquinia 2008

# Effect of plant height on weed biomass

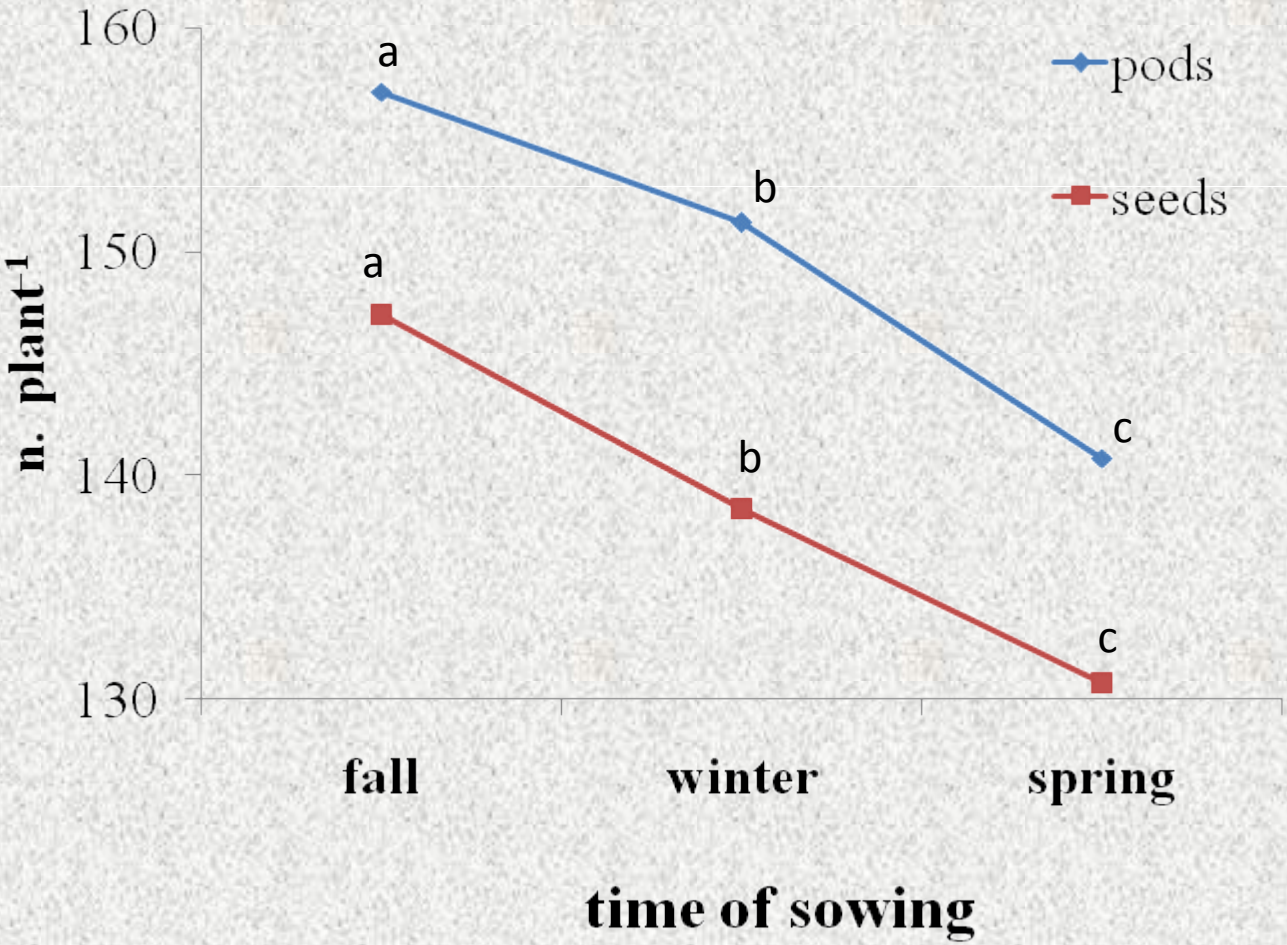



Time of sowing and seeding rate
fall
spring
winter

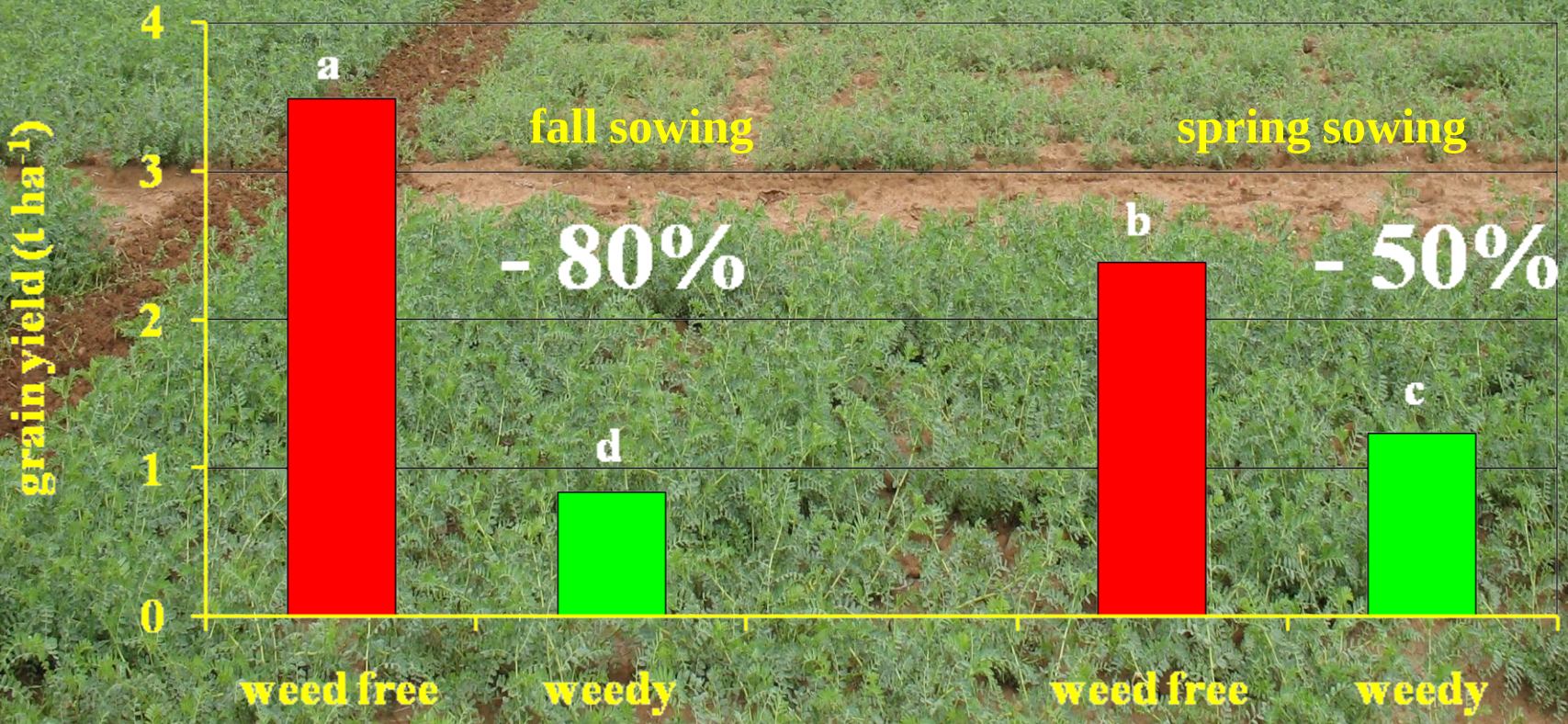
# Time of sowing



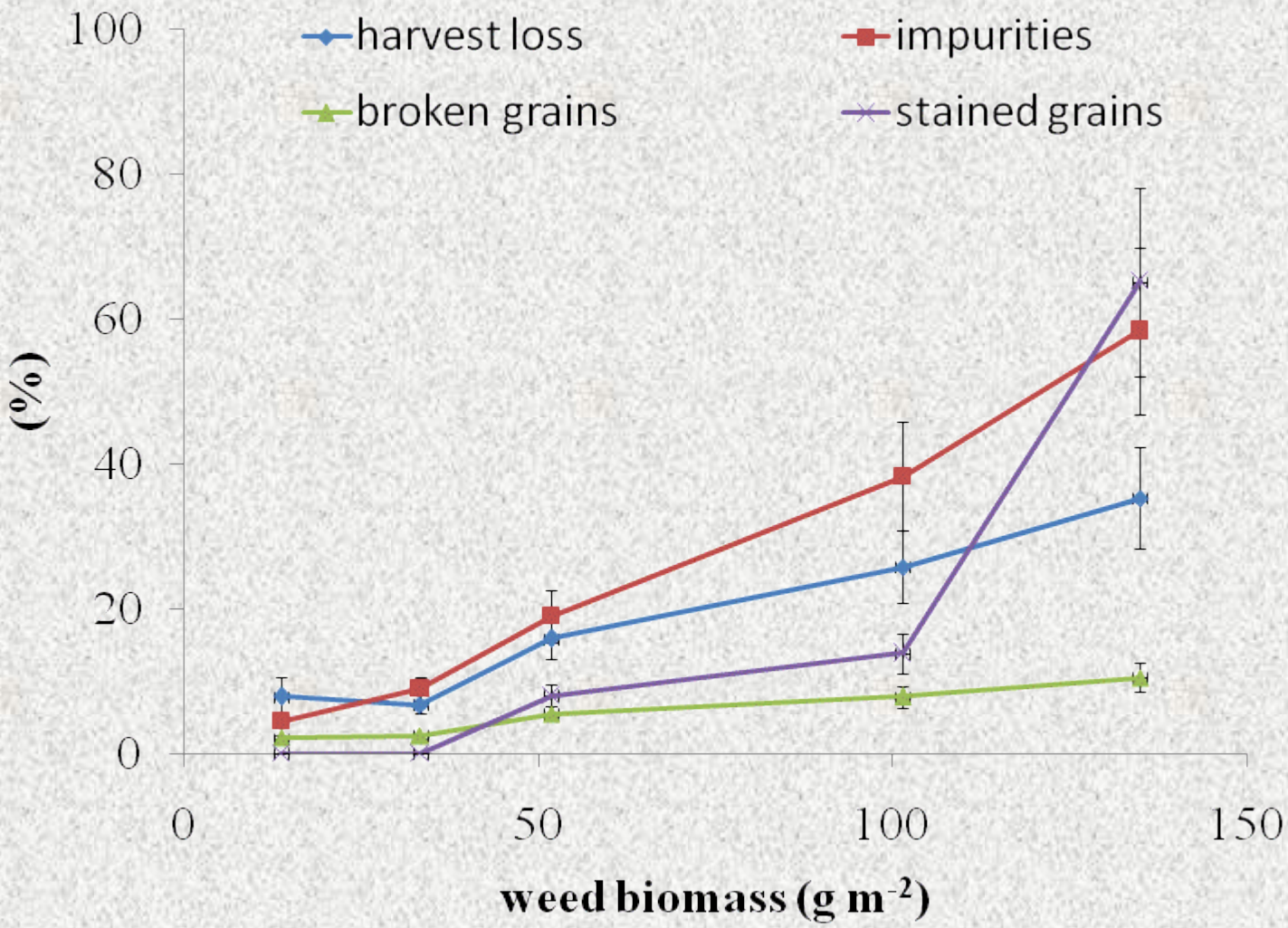
# Time of sowing



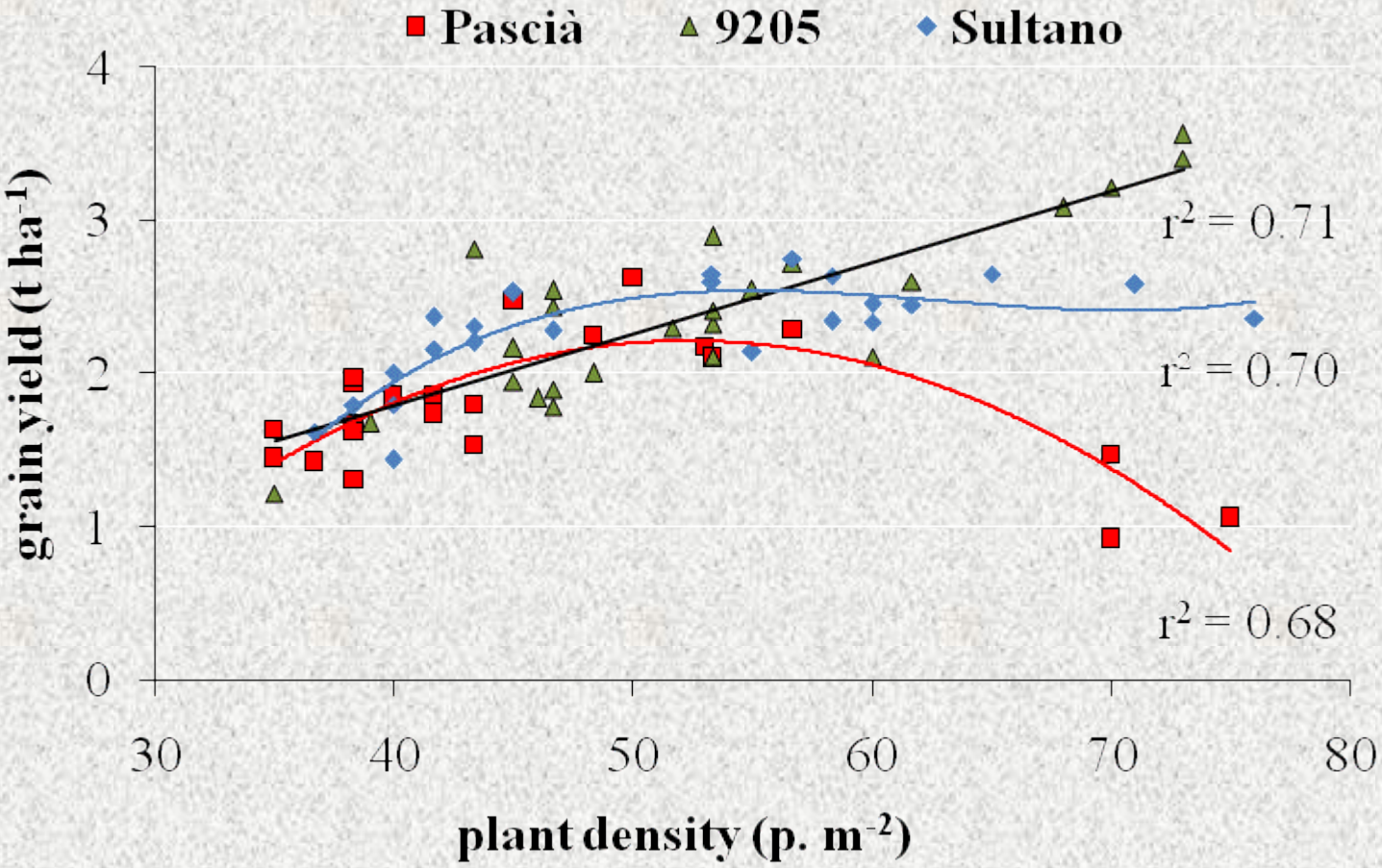
# Weed effect (Viterbo 2011-2012)



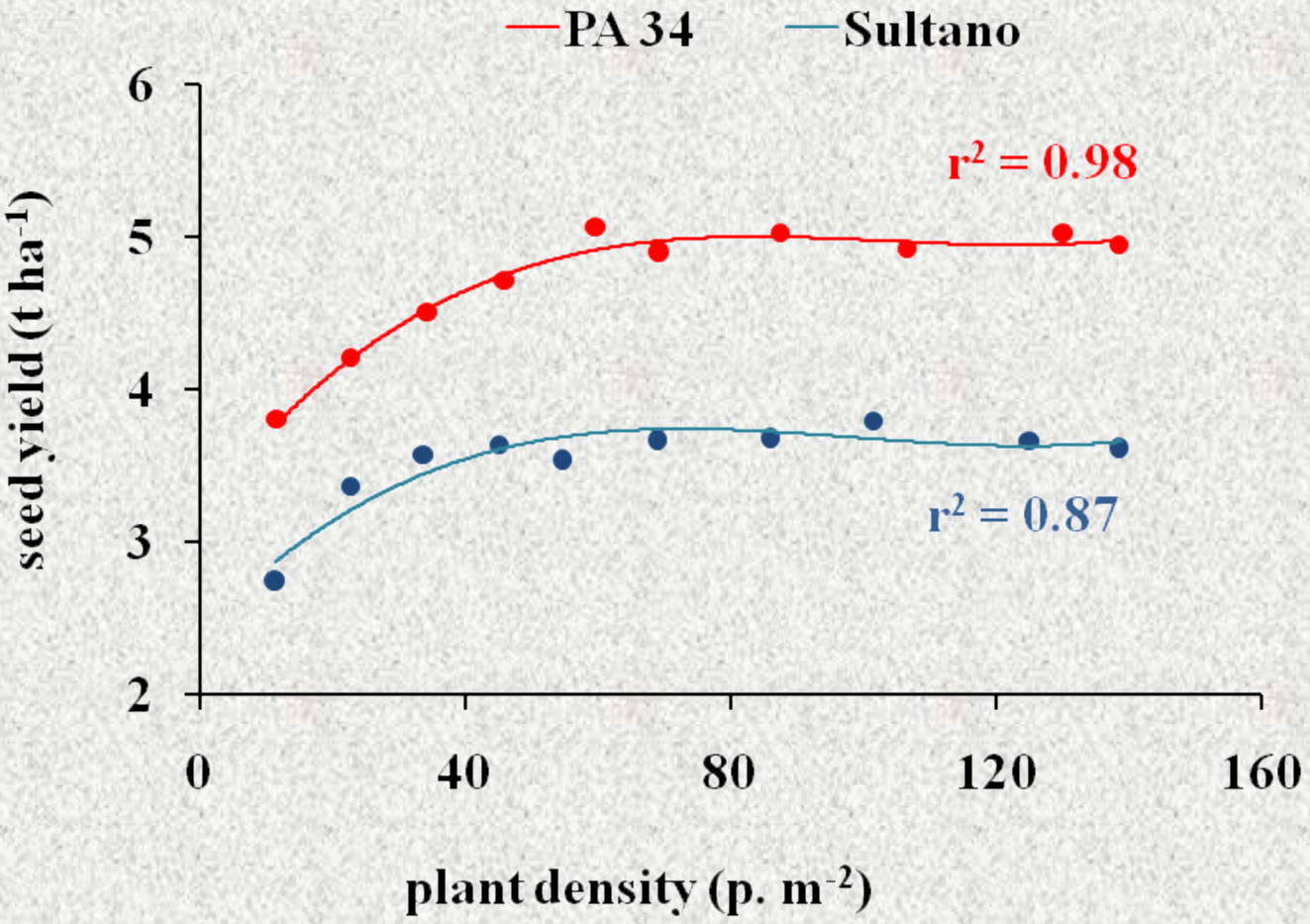
# Effect of weeds on grain standards



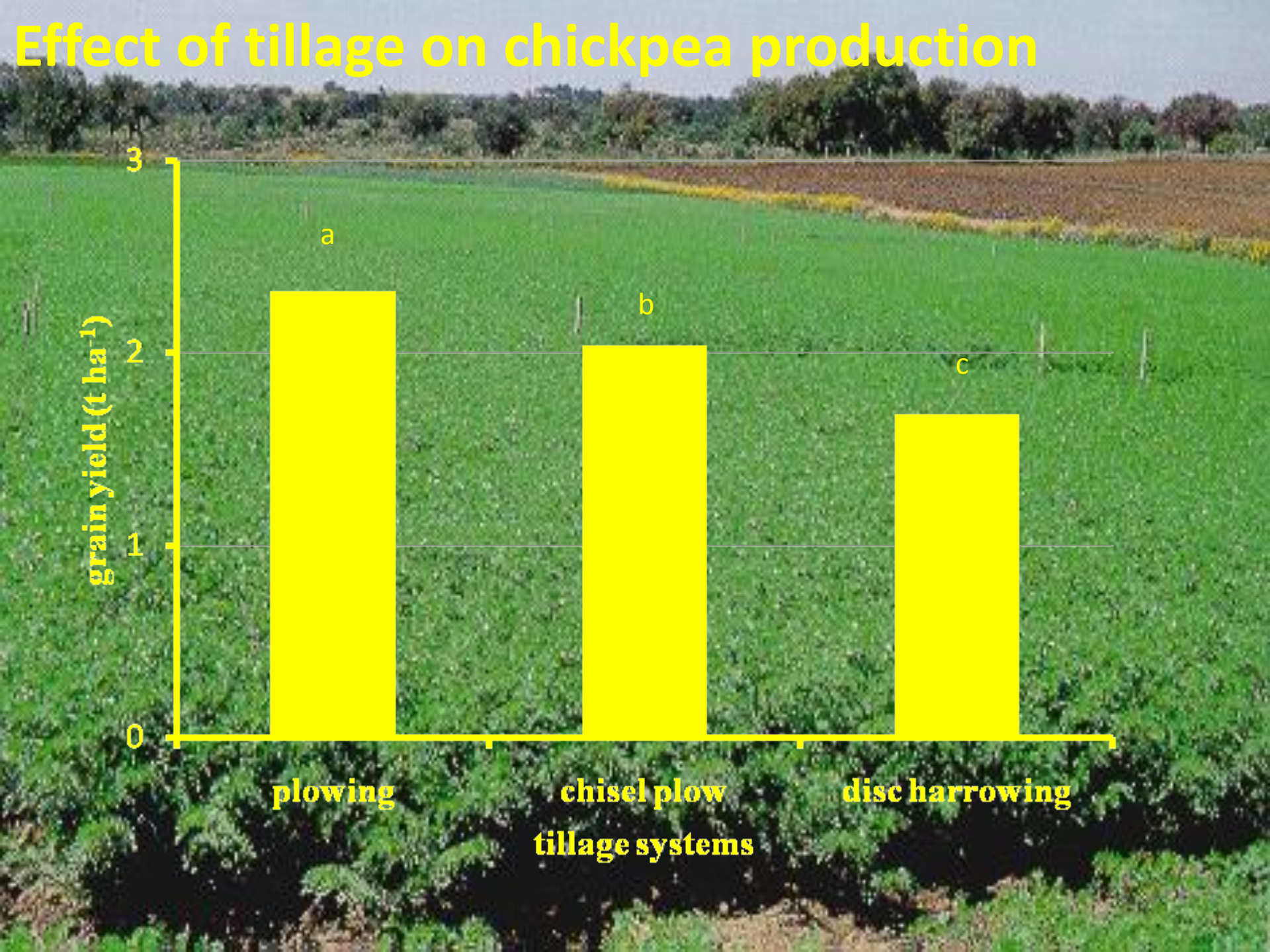
# Viterbo


Pascià
9205
Sultano
grain yield (t ha-1)
plant density (p. m-2)
r2 = 0.71
r2 = 0.70
r2 = 0.68
0
1
2
3
4
30
40
50
60
70
80

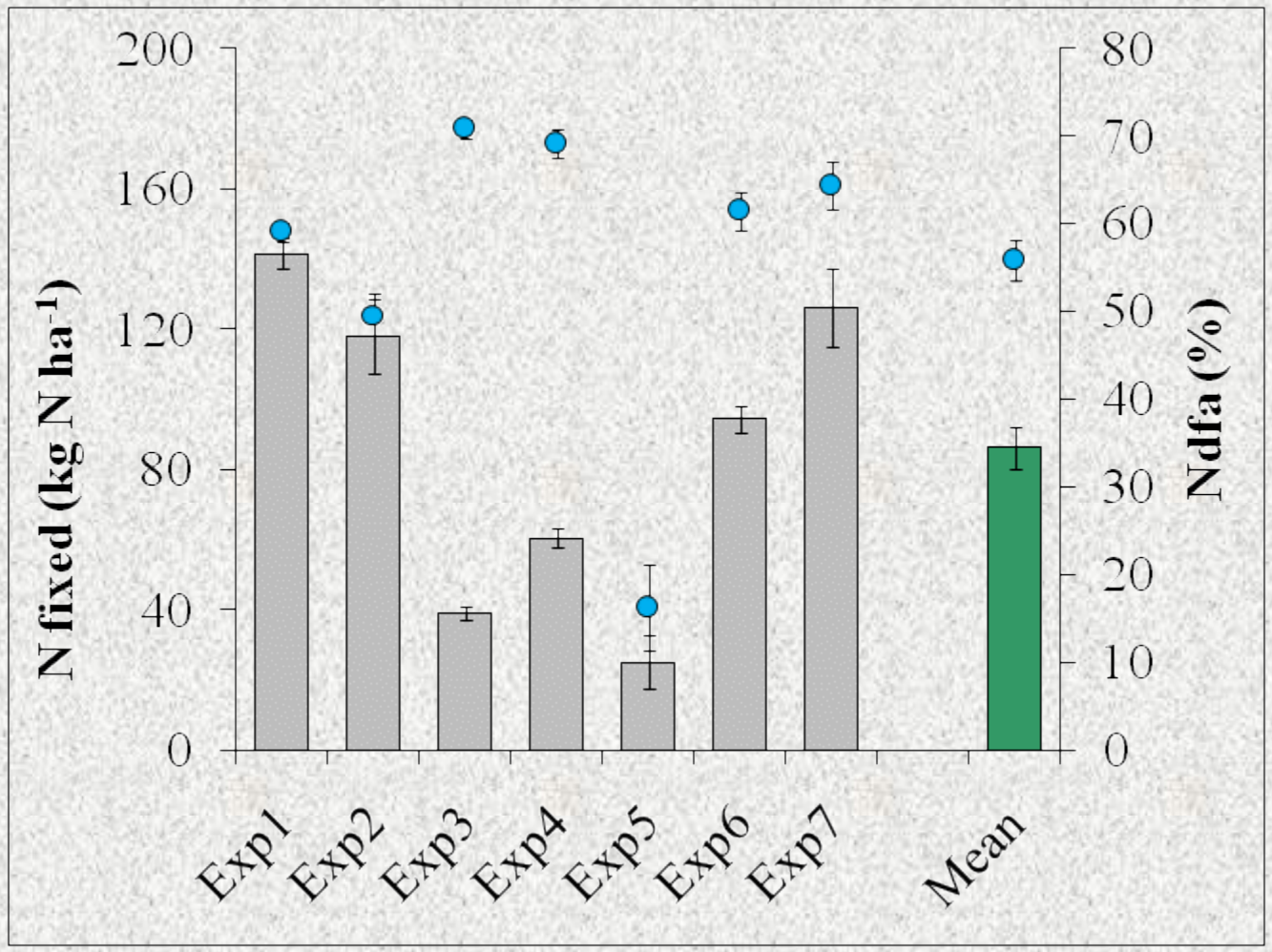
# Santo Stefano di Quisquina



# Effect of tillage on chickpea production

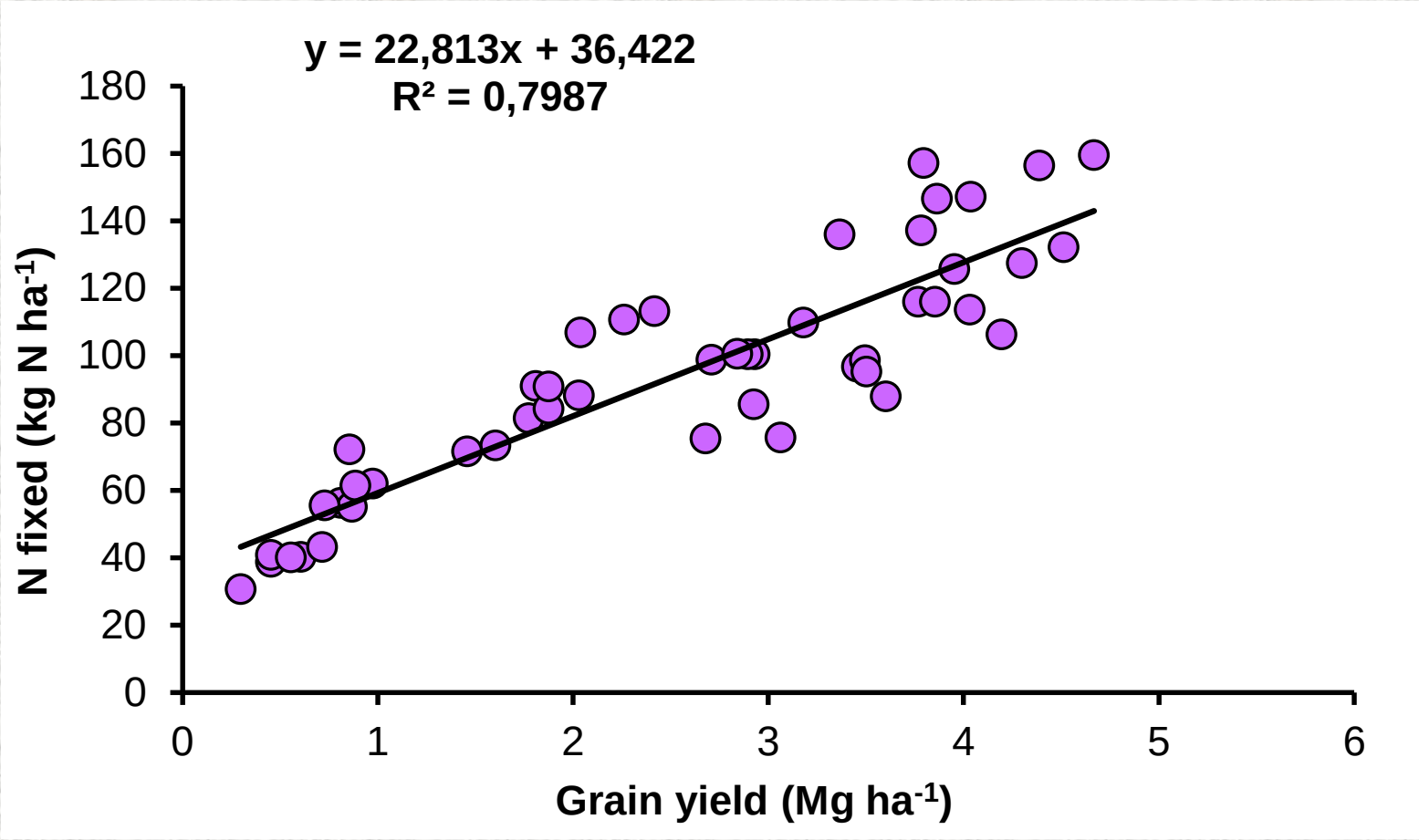


# Preceding crop and wheat yield




Estimates of the proportion (Ndfa, blue circles) and the amount (gray histograms) of shoot N fixed by chickpea in seven different experiments. Vertical bars represent ± standard errors

# Relationship between the amount of N fixed in biomass and the chickpea grain yield



# SUMMARY

## Cultivar selection and seeding rate

- Genotype plays a crucial role in determining plant habit, AB tolerance and grain size;

- AB resistance is a pivotal factor for good production level, especially when early sowing are performed;

- Seeding rate is closely related to genotype habit.

# SUMMARY

## Time of sowing and effect of weeds

- Advancing the sowing time in January or even December results in a significant yield advantage over spring time.

- On the contrary, very early seeding increases frost risk, competition from weeds, AB susceptibility and may not provide a yield advantage over winter sowing.

# SUMMARY

## Soil tillage and crop rotation

- Differently from what happens in most arid environs, in Central Italy replacing ploughing with minimum tillage led to a decrease in chickpea yield performances (-12,2%).

- Chickpea was a good preceding crop for winter cereals in rainfed cropping systems.

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# THANKS FOR YOUR ATTENTION

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